**BUREAU OF ENVIRONMENT**

**CONFERENCE REPORT**

**DATE OF CONFERENCES**: October 4 and 11, 2007

**LOCATION OF CONFERENCES**: JO Morton Building

**ATTENDED BY**: Marc Laurin, Kevin Nyhan, Chris Waszczuk, Dave Scott, Dave Powelson, and Doug Gossling NHDOT; Jim Garvin, Edna Feighner, Beth Muzzey, and Linda Wilson, NHDHR; Bill O'Donnell and Jamie Sakora, FHWA; Jamie Paine, CLD; Tim Grant, Provan and Lorber; Matt Walsh, City of Concord; Aaron Seaman and John Wilson, Jacobs, Edwards, and Kelcey; Sean James, HTA; Alex Bernhard, Northern Rail Trail; Ed Hiller, Andover Historical Society; and Jim Bouchard, H.L. Turner.

*SUBJECT: Monthly SHPO-FHWA-ACOE-NHDOT Cultural Resources Meeting*

**Bath, Swiftwater Covered Bridge (no state or federal number)**
**Dublin 14928 (no fed. #)**
**Warner 14519A (no fed. #)**
**Concord, X-A000(090), 13889**
**Peterborough (14951, no federal number)**
**Pelham, X-A000(415), 14491**
**Ossipee (no project numbers)**
**Conway, HD-STP-NHS-DPI-MGS-TX-0153 (001), 11339B**
**Durham-Newmarket, STP-TE-X-5133(009), 13080**
**Andover, X-A000(219), 14169**
**Exeter, Downtown Reconstruction**
**Rochester, Brock Street Reconstruction**
**Portsmouth, Raleigh Way Reconstruction within the Atlantic Heights Neighborhood**

*Thursday, October 4, 2007*

## Bath, Swiftwater Covered Bridge (no state or federal number). Participants: Dave Powelson and Doug Gossling.

The Bath-Swiftwater covered bridge has been closed since the summer because of a failure of a post over the pier on the downstream side. The post was not fixed in the recent, 1999 rehabilitation. Because of the decay at the base of post #12, the foot of the post failed in shear so that it was no longer carrying its share of the load. This load was then transferred to an adjacent tension diagonal. However, this diagonal did not have a strong top connection because of its original configuration. It was likely a weak connection when new. The tension members in a Paddleford truss are usually smaller in cross-section than the compression diagonal members. The failure of these connections allowed an adjacent post to drop, placing unusual stress on the top chord, which resulted in the twisting or breakage of the top chord.

Dave Powelson suggested the following solution to repair the failure. The NHDOT proposed to fix the post by splicing a new section to the bottom of post #12 and bolting the post to the bottom chord. The same treatment will be carried out to adjacent post #13. To accomplish this, the bridge will need to be lifted from its original elevation and set back down after the repair. Tails will be applied to the tops of the two tension diagonals that meet at the center of the bridge to fix their original design flaw. Additionally, the interior upper chord is cracked on the end. The piece will be replaced. Fourteen rods will be added to secure the bridge. Additional problems may be found as work proceeds. The project will be funded as a bridge aid project.

Recognizing the structural problems undergoing repair, Jim Garvin concurred with the proposed repairs.

**Dublin 14928 (no fed. #). Participant: James Bouchard, Quantum Construction Consultants (jbouchard@hlturner.com).**

Quantum Construction Consultants, LLC (QCC) was contracted by the Town of Dublin to prepare an engineering study for the design of a replacement bridge structure on Old Marlborough Road over Charcoal Brook. The existing 8' x 12' corrugated metal pipe arch culvert was undermined, resulting in the collapse of the culvert and roadway failure in April 2007. The limits of work extend 175 feet east and 300 feet west of the culvert along Old Marlborough Road and approximately 150 feet downstream for channel restoration.

QCC presented three alternatives that were evaluated as part of the engineering study, replacement in kind, a pre-cast box culvert, and a pre-cast arch. The replacement in kind is not feasible because of NHDOT and NHDES regulations, but was included in the study for cost comparison. The hydraulic analyses of this alternative indicate that the pipe will not meet current freeboard requirements of the NHDOT design criteria.

The second alternative presented was a pre-cast concrete box culvert with pre-cast wingwalls. The proposed box is 12 feet wide by 11 feet high with 15-21 inches of natural streambed placed inside. The roadway profile will be raised to provide sufficient cover over the box. The box will be set to provide a waterway opening sufficient to pass the 50-year flood event with freeboard of 1.72 feet, which exceeds the NHDOT design criteria and allows for future hydraulic improvements upstream. Upstream and downstream cutoff walls are required to mitigate undermining due to piping. The proposed wingwalls are pre-cast concrete panels with a stone pattern on the north wingwalls facing the golf course. The foundation for the pre-cast wing walls will be reinforced concrete, spread footings below the streambed elevation. The construction of the cutoff walls and foundations will require a cofferdam and dewatering.

The third alternative QCC presented is a pre-cast concrete arch or rigid frame structure founded on stem walls with spread footings below scour depth, and pre-cast panel wingwalls. This alternative is very similar to alternative 2 and provides the same hydraulic capacity as the pre-cast box. The proposed bridge typical section and roadway profile are the same as that of the box culvert. Construction of the arch and wingwall concrete spread footings and stem walls will require a cofferdam and dewatering.

QCC recommended the pre-cast concrete box alternative. This alternative provides the most cost effective, low maintenance bridge alternative with minimal environmental impact.

The alternatives of the project were considered to have no historical properties affected on historical resources.

## Warner 14519A (no fed. #). Participant: Tim Grant, Provan and Lorber (Tgrant@provan-Lorber.com).

A. Existing Conditions

Connor's Mill Road over Schoodac Brook (194/172) is located in the Town of Warner, NH in Merrimack County. Connor's Mill Road and Schoodac Road meet at a T-intersection approximately one and a half miles north of Exit 8 on Interstate 89. The stone ruins of Connor's Mill lay approximately sixty feet upstream of the centerline of Connor's Mill Road at the bridge. The Town of Warner installed a 12' wide by 8' tall metal plate culvert in 1978 to carry Connor's Mill Road over Schoodac Brook. In
April of 2006, floodwaters overflowed the culvert and washed the roadway and culvert fill downstream. This flood appears to have been a Q100 flood event, or greater, as determined by comparison with similar flood events across the State at that time. In May of 2006, a greater flood occurred with a much higher flood stage (see Photograph), possibly as a result of backflow from the Blackwater Dam Reservoir, which is operated by the US Army Corps of Engineers on a watershed adjacent to that of Schoodac Brook. After the flood, the NHDOT erected a ninety-foot long temporary truss bridge. That bridge is intended to remain in service until a replacement structure is constructed.
The existing town right of way on Connor's Mill Road is fairly narrow, at two and a half rods or 41'-3" wide. Residences and land accessed by Connor's Mill
Road can also be accessed by Roby Road from NH 127 in Webster, with a detour length of approximately five miles. Connor's Mill Road services a small number of full-time residences.

B. Design Criteria

The proposed bridge will be designed to meet the NHDOT design criteria as follows:
1. Design Speed: 30 mph (same as current)
2. Design Loading: HL-93 or 125% Military Loading
3. Number of Lanes: two 12-foot wide lanes
4. Hydraulics: Pass 50-year flood event with 1' freeboard.

No traffic counts have been performed within close proximity to the project site. It is expected that most vehicular traffic at this site consists of passenger cars, with occasional heavy trucks and town maintenance vehicles. The AADT count is expected to remain at less than 250 for the next 10 years. It is expected that the new bridge and rebuilt roadway will remain within the existing ROW. The road project will be designed in accordance with the *Minimum Road Standards to Upgrade Class V Roads* adopted by the Town. The roadway design for Conner's Mill Road includes a 20-foot wide road paved with asphalt (2" base course and 1" top course), with 2-foot wide shoulders on each side, for a total width of 24 feet. A ADS-type plastic culverts will be designed for road drainage and driveway crossings.

C. Scope

Bridge types to be considered for this site include a pre-cast, concrete rigid frame, a CIP concrete deck on steel girders, or pre-cast concrete voided slabs resting on stub or pile-supported integral abutments. The type of bridge selected will depend: on the span required to pass the NHDOT-specified flood flow, shown in the table above as the Q50 or 2% per annum probability of

occurrence flood, with a foot of freeboard; the capacity of the existing soil foundation materials to support the type of structure chosen; and the need to stay within the existing ROW. This latter requirement naturally precludes encroachment on the historic stone structures of the Connor's Mill, which remains just upstream and outside the existing ROW. Flood flows must be determined by hydrologic analysis of the watershed of Schoodac Brook above the bridge location, including examination of possible overflow locations from the Blackwater Reservoir. Recent events suggest a direct connection may occur between these watersheds, but that they may not affect the NHDOT Q50 design event. Soil borings will be made on both sides of the Brook to determine the character of the natural foundation materials in the vicinity of the proposed abutments. The possibility exists that a longer span structure may be more economical at this site, due to the differential depth between the streambed and the probable finished grade of the proposed roadway of some twenty feet. This depth would require a significant extension of a culvert-type structure upstream and downstream that could only be kept within the ROW by use of longitudinal retaining walls. In addition, a frame or culvert installation would likely also require cofferdams and significant disturbance of the natural streambed and newly restored stream banks. Wetland areas to be impacted will be the existing roadway embankments and lie in the immediate vicinity of the bridge abutments. The wetlands permit is anticipated to be a minimum impact application, with least impact for a structure spanning the waterway. There are no other environmental issues related to the replacement of Connor's Mill Road Bridge and the approach roadway work.

FINDINGS**:**
The members of the review committee stated that if the project stays within the existing ROW and away from the existing stone structures of the historic Connor's Mill, upstream of the bridge crossing, and if the project does not disturb earth that has not been disturbed previously by installation of the current temporary bridge or by the installation of the flooded culvert, then the proposed bridge project will have no adverse effect on historical or archaeological resources. The committee requested that the Engineer consult with a local Warner historian (Rebecca Corser) regarding historic stone structures. The committee requested the engineer to report to the committee when the preliminary plans for the proposed bridge replacement have been prepared so they may review the type of bridge chosen for this location.

**Concord, X-A000(090), 13889. Participant: Matt Walsh, City of Concord ( mwalsh@onconcord.com).**

Matt Walsh, City of Concord, and Chris Carley, CN Carley Associates (Architect for the City) met with the NHDOT Cultural Resources committee to discuss construction of two new bus shelters in Downtown Concord. The purpose of the meeting was to receive approval of final bus shelter concepts for the project. This is required so as the project can move to the bid phase. The project entails constructing shelters near the State House Plaza as well as Eagle Square.

State House Plaza Stop: M. Walsh provided a brief history and noted that the decision was made to relocate the shelter to a new bump out, to be built at the corner of Park and North Main Streets. He distributed 11X17 copies of progress prints detailing the style of the shelter. M. Walsh noted that the shelter is identical to a concept previously approved by the NHDOT Cultural Resources Committee. The committee reviewed the proposed final design and concluded that it was appropriate.

Eagle Square Stop: M. Walsh reviewed the proposed concept. The proposed shelter is an open air, freestanding building to be located between two large trees on the south side of the entry way into the plaza. NHDHR inquired whether the shelter would obscure any placards or other "artifacts" displayed along the entry of the plaza. M. Walsh confirmed that the shelter would not obscure any items of historical significance within the entry to the Square. Members of the committee were pleased with the final design.

It was the consensus of the committee to approve the final designs of both shelters and found that the project had no adverse effect within the National Register Listed District. J. McKay and M. Walsh will coordinate the content of the effect memo for municipal projects.

**Peterborough (14951, no federal number): Participant: Aaron Seaman and John Wilson, Jacobs, Edwards, and Kelcey (Aaron.Seaman@Jacobs.com).**

The project involves maintenance along Sand Hill Road, which was damaged by spring floods. The extension of an 8' wide culvert failed. Its headwalls are stone and the interior is slip-lined. FEMA funding is involved.

As requested from the cultural resource meeting, I have attached a PDF of the USGS project location map and the Cultural Resource Memorandum of Effect with comments added from the meeting. Notes summarizing our project are as follows:

- This project involves the replacement of a culvert extension over an unnamed tributary to Contoocook River. The original culvert consisted of a stone arch, but has since then been slip-lined with corrugated aluminum plates and has been extended.

- The existing structure is approximately 25' wide with a 10' culvert extension that spans approximately 8'. During the April 2007 flood event, the culvert extension was undermined and failed due to scouring.

- Jacobs Edwards and Kelcey propose to remove the failed culvert extension and replace it with a 5 FT x 8 FT pre-cast concrete box culvert. In addition, minor maintenance repairs will be conducted to the downstream side of the existing headwall to increase longevity of the structure.

- This project will be 75 percent funded through FEMA and 25 percent through the town. Please not that the potential exists for the state to pay half of the 25 percent paid by the town.

- In conclusion, it was determined that the original culvert will be treated as National-Register-eligible. It was requested that a Culvert Survey Form be filled out, black & white pictures be taken, and a USGS map of the project be provided. It was also stated that the local heritage commission might have information that would be helpful.

**Pelham, X-A000(415), 14491. Participant: Kevin Nyhan and Chris Waszczuk.**

Chris Waszczuk discussed this CSS project, which addresses intersection deficiencies in downtown Pelham. The discussion focused around the extent of the District Area Form and necessary supporting Individual Forms. After a discussion of the need for these forms, it was determined and agreed that the provisional boundary outlined by Nadine Person is a good starting point and the district could either grow or shrink. In an effort to be fiscally responsible, if the district were to grow incrementally beyond the provisional boundary, necessitating additional individual forms. The consultant must coordinate with J. McKay to determine what will be needed if the limits of the district appear to extend well beyond the APE for the project. The consultant should complete a full district area form.

*Thursday, October 11, 2007*

**Ossipee, X-A000(717), 15296. Participant: Sean James, HTA (Sjames@hta-nh.com) and Bob Gillette, Town of Ossipee.**

The two upcoming phases of work for the Whittier Covered Bridge (108/333) were reviewed. The bridge is a ca. 1870 Paddleford truss bridge. Arches were added at a later date. The bridge was last rehabilitated in 1982, when all of the bottom chords were replaced along with other areas of decay.

HTA is retained by the Town of Ossipee to stabilize the bridge. The plan is to accomplish this in two phases. Currently, the existing bottom chords are decayed and transferring the load of the bridge to the arch. The object of the first phase is to complete limited reinforcement prior to the onset of winter. Reinforcement is necessary to stabilize the bridge in its current location and to move the bridge back off its abutments, which is the second phase of work. The rehabilitation will occur while the bridge is located off its abutments, and the return of the bridge to its abutments would occur during the third phase.

Tim Andrews of Barns and Bridges of New England is currently working with HTA to conduct the first phase. Vertical blocking would be placed along the bridge using Dewey Dag rods. With this method, no holes will need to be drilled for the rods. Wire rope bracing would prevent lateral sway and kept the bridge from going further out of plumb.

Phase II or the relocation phase will require an Army Corps permit. The bridge would be moved to the south bank and placed on 4-foot high concrete blocks. HTA would provide basic guidelines for moving the bridge but will not specify the process. One method includes placing shoring in the river and rolling the bridge onto the shore. The second method involves the use of cranes to pick up the bridge. Then, the bridge would need to be moved in sections. Once moved, the bridge would be secured with chain link fencing.

Bob Gillette explained that the bridge is in jeopardy from snow loads and flooding at the current time. Decisions concerning FHWA funding for covered bridges have been considerably delayed. The town has raised a total of $140,000, which includes private donations. If the town expends this money on stabilizing and moving the bridge to secure the bridge, then it would not possess funds to match the requested grant from FHWA. The rehabilitation would cost $950,000. The town has applied for bridge aid funds, which also requires a 20% match and LCHIP monies,

needing a 50% match, to help finance the first two phases and maintain the necessary matching funds. Linda Wilson suggested that Rural Development might also be a source of funding. The potential for funding from the 1772 foundation was also discussed.

It was agreement that the stabilization and relocation of the bridge would not have an adverse effect on the structure.

**Conway, HD-STP-NHS-DPI-MGS-TX-0153 (001), 11339B. Participants: Joyce McKay.**

J. McKay presented the adaptive reuse plans for the proposed addition to the Burtis House after its sale to private ownership. The two-story, addition sits behind and parallel to the original house. Each floor contains 5,000 square feet. B. Muzzey expressed concern that the height of the addition may overwhelm the Burtis House. The design of the addition with its two cupola and jetties along the roofline alludes to a barn, which was never on the property. She requested that these two elements be modified and wondered if the appearance of the addition from the front of the house could be approximated in photo shop. It would be important to at the least know the height of the addition relative to the house. J. McKay also pointed out the foundation near the drive to the hospital and will review that with the developer in an attempt to preserve the feature in place. [J. McKay contacted the developer who is trying to provide the requested photographs.]

**Durham-Newmarket, STP-TE-X-5133(009), 13080. Participant: Kevin Nyhan.**

Kevin Nyhan discussed the changes in this project resulting from comments at the Public Hearing. This project involves the addition of shoulders along a portion of NH Route 108 in Durham and Newmarket.

There are several minor changes that resulted from the hearing. They include:

1. Extending the sidewalk along the east side of the roadway in Newmarket to Stagecoach Road. This extension will require slightly more right-of-way or easements, but would not impact an historic property not already proposed to be impacted.
2. Increasing the turning radius at the Bay Road intersection in Newmarket.
3. Reducing the work at the intersection of Bennett Road with NH Route 108. Prior to the hearing, a substantially different T-type intersection was proposed to improve safety. Resulting from comments at the hearing, the intersection improvements will be reduced and limited to minor throat widening. There will be no substantial change from the existing condition.

At the time of the hearing, the current Transportation Bill reauthorization, SAFETEA-LU, had not been passed, and as such the *de minimis* provisions for Section 4(f) did not exist. For this project with a No Adverse Effect determination, currently the *de minimis* provisions allow for an extremely curtailed Section 4(f) review. K. Nyhan requested that these provisions be utilized for this project. FHWA and SHPO agreed that the project could utilize the *de minimis* provisions. The Categorical Exclusion/ Section 4(f) Document will reflect these changes.

**Andover, X-A000(219), 14169. Participants: Kevin Nyhan and Dave Scott, and Alex Bernhard, Friends of the Northern Rail Trails (aabernhard@comcast.net), Ed Hiller, Andover Historical Society, consulting parties.**

Dave Scott discussed this project which involves the construction of an at grade intersection of NH Route 11 and US Route 4 in Andover. In addition, the bridge that carries NH Route 11 over the Northern Rail Trail will be replaced. There are several cultural features in the project area that have been identified by the consultant. The project minimizes impacts, and a report has been prepared. With this preferred action, the report will be re-reviewed to ensure that impacts are still being minimized.

A. Bernhard, consulting party, detailed that he has been participating in design, and would like to stay better informed of current design thinking by the Department. His major concerns are for 1) maintaining the grade through the replacement structure, and 2) adequate drainage through the structure. At a previous meeting, Bob Landry and A. Bernhard agreed to a coordination plan, which involves monthly conversations, and invitation to design meetings. A. Bernhard would like this coordination model to be used for all projects that affect the Northern Rail Trail. He would like to receive earlier notices earlier in the project designs that affect the Northern Rail Trail. B. Muzzey suggested that a MOU be developed between the Department and the Friends of the Northern Rail Trail, which outlines this coordination plan. This could be used as mitigation should it be determined that the project has an Adverse Effect.

Edwin Hiller, consulting party for the Historical Society, indicated he supports the project as proposed.

Subsequent discussion revolved around the effect the project would have on cultural resources. Bill O'Donnell and Kevin Nyhan thought the project would have No Adverse Effect as the replaced bridge is not historic. B. Muzzey indicated that she would like to see what the effect other project's have had on the Northern Rail Line, a linear transportation district. Beth said she would review prior project effects. The project will be reviewed at a later date when the Department has a better understanding of the dimensions, type and appearance of the proposed bridge.

**Exeter, Downtown Reconstruction (Town Funded) (No project numbers). Participant: Jamie Paine, CLD.**

The Town of Exeter is proposing to reconstruct Front Street from its intersection with High Street/Water Street to the Court Street intersection. The project is one phase of a multi-phase effort by the town to enhance and rehabilitate the downtown area. The scope of construction will include relocation of overhead utilities and streetscape/sidewalk/drainage improvements, to enhance corridor aesthetics, vehicular circulation and pedestrian safety. The conceptual plans produced have been developed in collaboration with the Downtown Restoration Committee (DRC) through working meetings, as well as public comment received through the public participation process for the project. Sidewalks and crosswalks on Front Street will be brick. Crosswalks will use thicker brick pavers that will be well suited for the wear of winter maintenance.

It is anticipated that improvements will match closely to the existing line and grade of the current street and sidewalk facilities. Work will be structured to maintain the existing back of sidewalk

properties and easily fit the work to existing conditions. The existing bandstand will remain at its location with improved vehicle parking and pedestrian walkways within the center of Front Street. Landscape elements included are the sidewalk and crosswalk paving, plantings, site furniture (bollards, bike racks, trash receptacles, relocated benches), and ornamental lighting. Innovative stormwater collections to maintain the character of the historic district include the use of tree wells with under drains to collect and treat runoff.

The intent will be to relocate existing above-ground electrical power, telephone, cable television and/or data utilities from the intersection of Court Street and Front Street to the intersection of Water Street and Front Street to below ground installations and behind buildings on Front Street now served by the existing overhead utilities. Utility trenches may go as deep as 5' in three to four trenches.

NHDHR Determination

As Edna Feighner, Archaeologist with NHDHR, was unable to attend the meeting, NHDHR requested that we coordinate with Ms. Feighner to determine if she had any concerns with the proposed underground improvements. *Attempts to contact Ms. Feighner have been unsuccessful to date. We will contact her and receive her feedback.*

NHDHR also asked that we research the history of Front Street, particularly through 19th and 20th century mapping, to determine whether there have been any previous buildings within the existing Front Street footprint.

## Rochester, Brock Street Reconstruction (City Funded) (No project numbers). Participant: Jamie Paine, CLD.

The City of Rochester wishes to reconstruct the entire length of Brock Street between Washington Street (site of French Hussey burial site that was found earlier this year for the Brock Street/Washington Street intersection reconstruction project) and NH Route 125. The existing roadway footprint is already located with 25 ft of another cemetery and the current plan would move the sidewalk three feet closer.

The City of Rochester is proposing to reconstruct approximately 4,900 feet of Brock Street, a local road that connects NH Route 125 and Washington Street (near Spaulding Turnpike Exit 13). The road is lined with residential properties, several commercial buildings, a National Guard armory, the McClelland Elementary School, and the Cimetiere Du Sant-Rosaire (cemetery, date on brick storage facility on site is 1963). At the western extent, the project will connect in with improvements at the Brock Street/Washington Street/Woodlawn Avenue intersection reconstruction.

The proposed project will install new sewer lines down Brock Street, evaluate and provide for improved storm water management systems to better collect and treat runoff, and construct new sidewalks along the entire south side of Brock Street. Storm water treatment improvements currently propose a drainage outlet across a portion of the National Guard armory. The City is also considering cutting back a row of tall pine trees along the south side of Brock Street to provide more sunlight on the roadway and reducing a winter safety hazard of icing on the street.

NHDHR Determination

NHDHR requested that we coordinate with E. Feighner and/or Dr. Richard Boisvert, State Archaeologist, to receive their input on the project, with a specific review of the proposed improvements located immediately adjacent to the cemetery. *Attempts to contact Ms. Feighner have been unsuccessful to date. We have also left a message with Dr. Boisvert. We will contact them and receive their feedback.*

All National Guard armories in the state have been reviewed by NHDHR to determine if they are eligible for the National Register of Historic Places (NRHP). NHDHR requested that we contact NHDHR staff to find out if the Rochester armory is eligible for the NRHP. *Coordination with Tanya Kress, NHDHR Records Coordinator, determined that the Rochester armory is eligible for the NRHP.*

**Portsmouth, Raleigh Way Reconstruction within the Atlantic Heights Neighborhood (City/CDBG Funded). Participant: Jamie Paine, CLD.**

The City of Portsmouth proposes to reconstruct Raleigh Way within the Atlantic Heights neighborhood. The project had been previously presented at the July 12, 2007 Cultural Resource meeting. At that meeting, it was requested we coordinate with E. Feighner to receive her input on the project's effects to archaeological resources.

NHDHR Determination
Ms. Feighner determined through coordination with CLD that the project would have no effect on resources. With these findings, Linda Wilson signed a Cultural Resource Memorandum of Effect that "no historic or archaeological resources will be affected" by this project.

****Memos**: Epsom, 14896 (no fed #) and Durham STP-TE-X-5133(009), 13080.

Submitted by Joyce McKay, Cultural Resources Manager